Instructions for students:

Case study # 1

For this lab, you are planning to provide care to the following client:

CB is a 75 year old married female experiencing pneumonia is suspected of developing sepsis and has inadequate renal perfusion and is prescribed Dopamine (Intropin).

1. Refer to your Iggy text page 664. What indicators support the likelihood that your client may be experiencing sepsis?

2. Refer to Iggy page 839. The complication of sepsis can lead systemic inflammation response syndrome (SIRS) resulting in decreased tissue perfusion. What assessment data would the nurse collect that indicates that a client has inadequate renal tissue perfusion as a result of SIRS?

3. Early detection of sepsis is an important nursing responsibility. Page 842. What might you notice if sepsis is impending? Iggy page 845

4. What assessments should you be prepared to perform? Iggy page 845

5. What lab/diagnostics would you evaluate?
### Review the lab reports:

<table>
<thead>
<tr>
<th>Name</th>
<th>Barker, Cathy</th>
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<tbody>
<tr>
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<tr>
<td>MR #</td>
<td>654321</td>
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<tr>
<td>Physician</td>
<td>Dr Thomas</td>
</tr>
<tr>
<td>Admitting date</td>
<td>1/9/2010</td>
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**LABORATORY REPORT**

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<th>1/10/2010</th>
<th>1/11/2010</th>
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#### Complete Blood Count

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<th>Lab Test</th>
<th>Reference Range</th>
<th>Interpretation</th>
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<td>HCT MALE</td>
<td>40-52%</td>
<td></td>
</tr>
<tr>
<td>HCT FEM</td>
<td>37-46%</td>
<td></td>
</tr>
<tr>
<td>HGB MALE</td>
<td>13.2-16.2 gm/dL</td>
<td></td>
</tr>
<tr>
<td>HGB FEM</td>
<td>12.0-15.2 gm/dL</td>
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</tr>
<tr>
<td>RBC MALE</td>
<td>4.3-6.2x10^6/µL</td>
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<tr>
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<td>WBC</td>
<td>4.1-10.9x10^3/µL</td>
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#### WBC Differential

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<td>45</td>
<td>30</td>
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<tr>
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#### BLEEDING TIMES

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#### METABOLIC PANEL

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<td>CO2</td>
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<tr>
<td>BUN</td>
<td>7-21 mg/dL</td>
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<td>26</td>
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#### ARTERIAL BLOOD GAS

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<td>HCO₃</td>
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</table>

How do you interpret these labs?
6. What should you be prepared to do? Page 845

7. How do you expect the client to respond to your interventions?

The client has not had any urine output for 2 hours. The systolic blood pressure is 100 mm Hg and the heart rate is 126. The hospitalist prescribes an IV normal saline bolus, but the client remains anuric and hypotensive. The hospitalist suggests a Dopamine infusion.

8. Review the policy on Dopamine administration in your lab reading list. What is Dopamine (Intropin) and what dose is used for renal perfusion?

9. What assessment data is necessary before initiating Dopamine infusions?

10. What continued monitoring is required?

11. For which complications should the nurse plan care?

12. Why is an electronic pump necessary when administering this medication?

13. What is the policy for local infiltration of Dopamine?
14. Review the advanced IV calculation tips in your lab reading. You are instructed to start a second IV for a dopamine infusion. If you are ordered to administer Dopamine 1 mcg/kg/minute, your client weighs 70 kgs and you have a dopamine infusion of 400 mgs in 500 mL of D5W, at what rate would you program the infusion pump?

Enter the value on the flowsheet below:

<table>
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<tr>
<th></th>
<th>NS bolus</th>
<th>Dopamine 400 mg/500 mL</th>
<th>0.9 % NaCl 125 mL/Hr</th>
<th>BP</th>
<th>HR</th>
<th>RR</th>
<th>Pulse ox</th>
<th>T</th>
<th>Urine output</th>
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<td>500 mL</td>
<td>125</td>
<td>100/60</td>
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<td>26</td>
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</table>

15. The client’s urine output has not increased. What is the maximum infusion rate for renal dose dopamine?

The rapid response team continues to work on the client and stabilizes her. She is then prepared for transfer to the ICU. A transfer summary is completed and handoff communication is performed with the ICU receiving nurse. What should be included in the handoff communication?
Case study # 2
See Iggy page 818

PB is a 71 year old male s/p right total hip arthroplasty who has developed unilateral edema of his left extremity associated with pain down the length of his leg. He had sequential teds in use and was started on Lovenox injections for which he is due to receive at 10 am. His health history is complicated by 100 pack years of cigarette smoking.

Daily Peripheral Neurovascular Check Flowsheet

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<td>4+</td>
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</table>

16. How would you interpret the data from the peripheral NV flowsheet above?

The client is evaluated by the surgeon and the heparin protocol is ordered.

17. Review the Heparin protocol. Your client is prescribed the heparin protocol for suspected DVT. What is heparin and its therapeutic action?
18. Your client is on Lovenox (Enoxaparin). What concerns arise when considering Heparin therapy initiation?

19. What lab/diagnostics should be performed?

20. For what potential complications should the nurse plan care?

21. What lab/diagnostics should be performed prior to initiation of heparin?

22. What equipment would the nurse gather prior to initiating a heparin infusion?

23. Prior to initiation of a heparin infusion, an IV loading bolus dose is administered at 1000. What are the procedural steps in performing an IV bolus?

24. If your client weighs 90 kgs and you are ordered to administer Heparin 80 units/kg IV, how much heparin would you administer?

25. If you have Heparin 10000 unit/1 mL, how many mL would you draw up in your syringe?

26. Review the advanced IV calculation tips in your lab reading. If you are ordered to administer Heparin 18 units/kg/hour, your client weighs 90 kgs and you have a Heparin infusion of 25000 units in 250 mL D5W. At what rate would you program the infusion pump?

27. When should you redraw your PTT?
28. What assessment data indicating a potential complication would the nurse remain alert for during this therapy?

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<th>Bulmer, Peter</th>
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<tbody>
<tr>
<td>Lab Test</td>
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<td><strong>Complete Blood Count</strong></td>
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<tr>
<td>HCT MALE</td>
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<td>42</td>
<td>38</td>
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<td>4.3-6.2x10^6/µL</td>
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<td>Creatinine</td>
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**Based on the nomogram below, how do you interpret these labs?**

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</tr>
<tr>
<td>40-59 seconds</td>
<td>Increase infusion by 1 unit/kg/hr</td>
</tr>
<tr>
<td>60-85 seconds</td>
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</tr>
<tr>
<td>86-100 seconds</td>
<td>Decrease infusion by 1 unit/kg/hr</td>
</tr>
<tr>
<td>101-150 seconds</td>
<td>Hold infusion for 30 minutes and Decrease infusion by 1 unit/kg/hr</td>
</tr>
<tr>
<td>&gt; 150 seconds</td>
<td>Hold infusion for 60 minutes and Decrease infusion by 3 unit/kg/hr</td>
</tr>
</tbody>
</table>

29. What action would you take?

30. How would you calculate the change in rate?

31. How would you adjust the infusion pump?

32. According to the orders, when can you stop checking PTT levels every 6 hours?

33. What action should you take if excessive bruising or bleeding is noted?

34. What bleeding precautions should you employ? Iggy Chart 38-6 page 819

35. See Warfarin (Coumadin) therapy page 819. What levels are monitored if Warfarin is added to the regimen?

36. What is the antidote for Warfarin?

37. What is the antidote for Heparin?
Heparin (Unfractionated) Protocol (aPTT) - DVT or PE (Paper Version)

Communication Orders
- **Communication Order MD to Nursing**: Discontinue all prior orders for heparin, enoxaparin or fondaparinux, except orders for heparin used to maintain parenteral line patency (e.g. heparin-locks). Assess patient periodically for signs of bleeding. Avoid all intramuscular (IM) injections.
- **Communication Order MD to Nursing**: If BASELINE aPTT is <40 seconds, then follow dosing adjustment below. If ≥40 seconds follow heparin anti-Xa level order sheet or call anticoagulation service (pg 800 783 3735) for consult.
- **Communication Order MD to Nursing**: Draw a STAT aPTT 6 (six) hours after heparin initiated and 6 (six) hours after any dosage change. Make adjustments according to the nomogram found on heparin order until aPTT is therapeutic (60-85 seconds).
- **Communication Order MD to Nursing**: After obtaining 2 consecutive therapeutic measurements, aPTT should be monitored every 24hrs for the remainder of the course of therapy. Document all dosage changes and lab draws as a new order in the patient's medical record.

Patient Care

Prior to Initiation
- Weight QDay (kg); Baseline Weight: __________________________

Medications
- heparin bolus __________ unit(s), IV, INJ, Once, Dose = 80 units/kg *(Provider to calculate one time bolus dose)*
- **Heparin in D5W drip, 250 mL, IV, INJ, Titrate, Beginning dose = 18 units/kg/hr**
- **Heparin standard concentration is 100 units/mL**
- Warfarin ____ mg PO TAB H5

Laboratory

Obtain Prior to Heparin Initiation, if not already obtained in past 24 hours
- aPTT, STAT, Baseline prior to heparin infusion
- Platelet Count, STAT, Baseline prior to heparin infusion

Obtain Prior to Warfarin Initiation, if not already obtained in past 24 hours
- HCG, STAT, for women of child bearing potential only
- PT/International Normalized Ratio, STAT

Am Labs
- Platelet Count, AM Draw, QODay, until end of heparin therapy
- PT/International Normalized Ratio, every AM draw *(for warfarin unless otherwise specified)*

Consults
- Consult to University Health Care Thrombosis
  - Reason for Consult
  - Provider must CALL University Health Care Thrombosis service pager *(800) 783-3735* for consult.

Heparin Dosing Nomogram

<table>
<thead>
<tr>
<th>aPTT result (seconds)</th>
<th>Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 40</td>
<td>Bolus with 40 units/kg IV AND Increase infusion by 2 units/kg/hr</td>
</tr>
<tr>
<td>40 - 59</td>
<td>Increase infusion by 1 unit/kg/hr</td>
</tr>
<tr>
<td>60 - 85</td>
<td>No change</td>
</tr>
<tr>
<td>86 - 100</td>
<td>Decrease infusion by 1 unit/kg/hr</td>
</tr>
<tr>
<td>101 - 150</td>
<td>Hold infusion for 30 minutes AND Decrease infusion by 1 unit/kg/hr</td>
</tr>
<tr>
<td>&gt; 151</td>
<td>Hold infusion for 60 minutes AND Decrease infusion by 3 units/kg/hr</td>
</tr>
</tbody>
</table>

*All calculations shall be made using actual body weight (kg)*

*For patients with > 125 kg consider consult to University Health Care Thrombosis Service*

Provider Signature: ____________________________  Date: ______  Time: ______  Pager #: __________